Soviet Military Posture

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U.S.-U.S.S.R. Strategic Forces Today —pg. 2

By Admiral Thomas H. Moorer, USN, Chairman, Joint Chiefs of Staff

Impact of Strategic Arms Limitation

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By Admiral Thomas H. Moorer, USN
Chairman, Joint Chiefs of Staff

As President Nixon noted in his 1972 Foreign Policy Report, "Of the many elements that constitute military power in the nuclear age, strategic nuclear forces are most crucial." The U.S. strategic forces not only provide the basic deterrent to nuclear attacks on the United States and its allies but also strengthen the deterrent to major conventional attacks on our allies and on our forces abroad. Indeed, the U.S. strategic forces provide the indispensable foundation for the collective defense of the entire Free World. They are a fundamental prerequisite for the deterrence of all lesser types of war involving conflicting interests between the United States and its two principal adversaries, the Soviet Union and the Peoples Republic of China. Accordingly, the sufficiency of our strategic forces must continue to be our foremost concern.

Impact of SAL Agreements

The Anti-Ballistic Missile (ABM) treaty and the interim agreement on strategic offensive arms clearly constitute a major step in our efforts to slow the momentum of the U.S.S.R. strategic forces build-up and to establish some sort of mutual control over the further deployment of such forces by both the U.S. and the U.S.S.R. It should be understood, however, that these agreements in themselves do not eliminate the serious strategic problems which have been of such great concern to us during the last few years. The ABM treaty limits both parties to a relatively small, but equal, number of ABM launchers, and, to some extent, constrains the development of new ABM systems. The Interim Agreement, in contrast, limits both parties for five years, to a relatively large, but unequal, number of strategic offensive

MISSILE—A Russian soldier prepares to fire a hand-held SA-7 surface-to-air missile. The four-foot long SA-7 is a passive infra-red homing weapon which carries a high-explosive warhead.

ballistic missile launchers, and, with but one important exception (i.e., the size of Inter-Continental Ballistic Missile [ICBM] silos), places no significant constraints on the qualitative characteristics of the missiles or the launchers. Moreover, it places no limitation at all on other types of strategic offensive weapons (e.g., long-range bombers and cruise missiles).

In effect, therefore, the Interim Agreement provides both parties with considerable freedom to increase significantly the overall effectiveness of their strategic offensive forces. At the same time, the ABM treaty severely restricts the ability of both sides to improve significantly the overall effectiveness of their strategic defensive forces against the potentially greater offensive threats. I will discuss the details of these agreements in context with the specific forces involved, starting with the strategic offensive forces.

Interim Agreement Forces

Shown on the chart on page 4 are the strategic offensive missile systems associated with the Interim Agreement. You will recall that this Agreement deals not only with the forces already operationally deployed, but also with the launchers still under construction or fitting-out.

The figures shown on this chart for the United States are quite precise. We had 1,054 completed Inter-Continental Ballistic Missile (ICBM) launchers in mid-1972, some of which were undergoing conversion to Minuteman III. Of the 230 Minuteman III launchers shown on the chart, 210 were operational and 20 were undergoing conversion. We also had 656 completed Submarine Launched Ballistic Missile (SLBM) launchers at that time, some of which were undergoing conversion to Poseidon. Of the 320 Poseidon launchers shown on the chart, 160 (10 submarines) were operational and 160 (10 submarines) were undergoing conversion. Thus, we had a total of 1,710 strategic offensive missile launchers in being in mid-1972, and that is the "total launcher ceiling" for the United States under the Interim Agreement.

If we choose to exercise our option under the Agreement to replace the "older" ICBMs (i.e., the 54 Titan IIs shown on the chart) with "modern" SLBMs, then we could have as many as 710 "modern" SLBM launchers on 44 "modern ballistic missile submarines," but no more than 1,000 "modern" ICBM launchers, again for a total of 1,710. Alternatively, we could modernize by replacing the "older" ICBM launchers with "modern light" ICBM launchers (i.e., about the size of Minuteman), but then we could have no more than 656 SLBM launchers.

The figures shown for the Soviet Union on this chart are, for obvious reasons, far less certain than those shown for the United States. Except for the SLBM baseline ceiling of 740 and maximum ceiling of 950, the Soviet Union figures are United States estimates.

As shown on the chart, we estimate that the Soviet Union had completed or under construction in mid-1972 a total of 1,618 ICBM launchers—209 "older" launchers "deployed prior to 1964" (SS-7s and -8s), 313 "heavy" launchers "deployed after that time" (SS-9s and new large silos), and 1,096 "light" launchers (SS-11s and -13s and new small silos). In other words, our estimate of the maximum number of ICBM launchers permitted the Soviet Union under the Interim Agreement is 1,618, of which no more than 313 may be of the "heavy" types deployed after 1964.

Our estimate of Soviet SLBM launchers on modern ballistic missile submarines operational and under construction in mid-1972 is subject to some uncertainty. We estimate that about 29 Yankee-class submarines (with 16 SS-N-6 launchers each) and one Delta-class submarine (a modification of the Yankee-class with 12 SS-N-8 launchers each) had been launched by that time. We believe a mix of 12 more Yankees and Deltas were under construction in the assembly buildings at that time, making a total of 42 submarines "operational and under construction." The U.S.S.R. maintained, however, that major subassembled sections of these submarines were being fabricated elsewhere, and that a total of 48 submarines were "operational or under construction" at that time.

To avoid a debate over the number of submarines under construction, both sides agreed to a negotiated "baseline" ceiling for the Soviet Union of "740 ballistic missile launchers on nuclear-powered sub-

Role of Detente in a Crisis

I think that this whole episode (Middle Eastern Crisis) indicates the limitations in a sense of detente but it also indicates the strength of detente. The fact that Dr. Kissinger, with considerable skill, I must say; a great deal of energy, was able to work out in collaboration with the Soviets the arrangement for two ceasefires, is I think a tribute to the strength of detente—the communications that existed between the two so-called superpowers. However, of course, there were some elements of conflict but that the overall episode did indicate some of the strengths of detente and some of the advantages to both sides, and to the world at large, in this relaxation of tension. I should underscore that detente refers to mutual relaxation of tension and that detente must be a two-way street, as in the close of this episode it turned out to be. . . . The episode has underscored the strengths of detente, it has also underscored its limitations and consequently in a matter so delicate it would seem to me to be inappropriate at this time to go any further into the kinds of matters to which you refer. I indicated that it was of a non-military nature.

James R. Schlesinger
Secretary of Defense
press conference October 26, 1973

marines." Since we estimate that the Soviet Union had nine older nuclear-powered submarines with a total of 30 launchers operational in mid-1972, the total number of launchers on the Yankee- and Delta-classes should not exceed 710, as shown on the chart.

If the Soviet Union chooses to exercise its option to replace the SS-7s and -8s with "modern" SLBMs, it could have as many as 62 "modern ballistic missile submarines" and 950 SLBM launchers, but no more than 1,409 ICBM launchers. The total number of launchers, in our view, may not exceed 2,359—the total strategic missile launcher ceiling implied in the Interim Agreement for the Soviet Union. Alternatively, the Soviet Union may modernize by replacing its SS-7s and -8s with "modern light" (but not "heavy") ICBMs, and its older SS-N-4s and -5s with modern SLBMs, or any combination of the two—provided that the total ceiling of 2,359 strategic missile launchers and the sub-ceilings of 950 SLBM launchers and 62 modern submarines are not exceeded.

In this connection, only Yankee-class and more advanced type nuclear-powered submarines are counted against the 62 "modern ballistic missile submarine" ceiling, but all SLBM launchers of any type on operational nuclear-powered submarines and all SS-N-6, SS-N-8, and more advanced SLBM launchers on diesel-powered submarines are counted against the 950 "SLBM launcher ceiling." Thus, none of the older nuclear-powered submarines count against the 62 modern submarine ceiling, but all SLBM launchers (old or new) carried by those submarines count against the 950 launcher ceiling. Similarly, none of the diesel-powered ballistic missile submarines count against the 62 modern submarine ceiling, but all SS-N-6s, SS-N-8s, and more advanced SLBMs which may be installed on such operational submarines would count against the 950 launcher ceiling.

In summary, the ICBM ceiling is 1,054 for the United States and 1,618 for the Soviet Union; the baseline SLBM ceilings is 656 for the United States and 740 for the Soviet Union; the maximum SLBM ceiling is 710 for the United States and 950 for the Soviet Union; and the total strategic missile launcher ceiling is 1,710 for the United States and 2,359 for the Soviet Union.

Intercontinental Ballistic Missiles

The Titan II is the only "heavy" U.S. ICBM but, like the U.S.S.R. "heavy" SS-7, it is considered in the Interim Agreement as an "older type" system because it was "deployed prior to 1964." All three versions of the Minuteman and all the "MODS" (models) of the SS-11 and -13 fall nto the "light" ICBM category. The SS-9 is, of course, a "heavy" ICBM deployed after 1964.

As can be seen from the chart, the U.S.S.R. ICBMs are generally larger than ours. Except for the SS-9 MOD 1 and 2, which carry a single large warhead, none of them has the combination of yield and accuracy needed to attack hard targets effectively; and there are not enough SS-9 MOD 1s and 2s deployed to constitute a significant threat to our Minuteman force. The MOD 3, which is the Fractional Orbital Bombardment System (FOBs) or depressed trajectory version of the SS-9, has a relatively large Circular Error of Probability (CEP) and is considered a soft-target weapon.

US AND USSR STRATEGIC OFFENSIVE MISSILE LAUNCHERS ASSOCIATED WITH INTERIM SAL AGREEMENT *

UNITED STATES		SOVIET UNION	
TITAN II	54	SS-7/8	209
MINUTEMAN I	260	SS-9 (PLUS NEW SILOS)	313
MINUTEMAN II	510	SS-11/13 (PLUS NEW SILOS)	1,096
MINUTEMAN III	230		
TOTAL ICBMs	1,054 (1,000)	TOTAL ICBMs	1,618 (1,409)
POLARIS A-2	128	SLBMs ON MODERN SSBNs	710
POLARIS A-3	208	SLBMs ON OLDER SSBNs	30
POSEIDON	320		
TOTAL SLBMs	656	TOTAL SLBMs	740
SAL SLBM CEILING	(710)	SAL SLBM CEILING	(950)
TOTAL (LAUNCHER CEILING)	1,710 (1,710)	TOTAL (LAUNCHER CEILING)	2,358 (2,359)

* OPERATIONAL AND UNDER CONSTRUCTION OR CONVERSION

U.S. Navy Photo

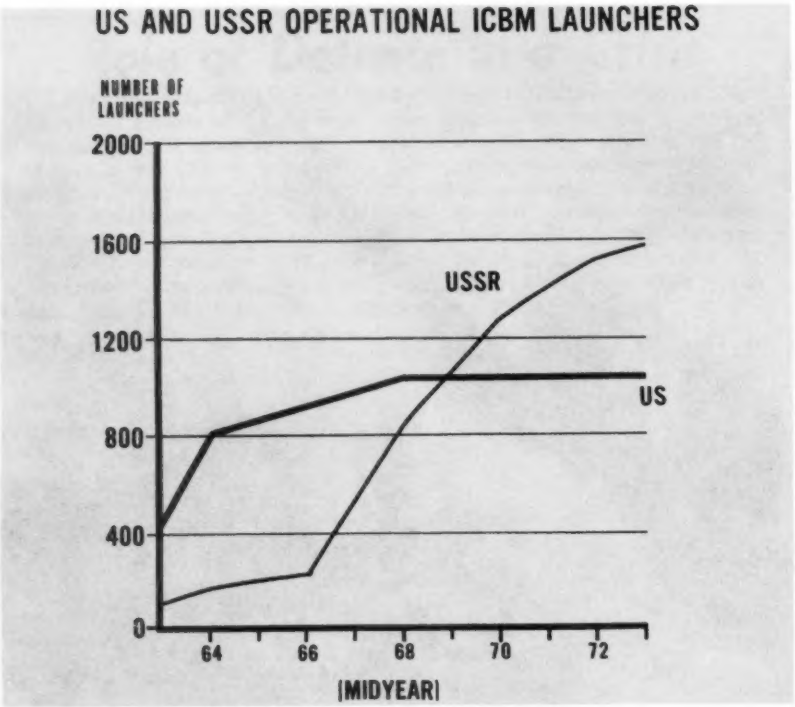
A Soviet "H" class nuclear-powered ballistic missile submarine surfaces 600 miles northwest of Newfoundland.

With regard to the SS-9 MOD 4, which has three warheads, another flight test occurred in January 1973, the first since November 1970. It is still too early to assess the significance of that test. As I noted last year, the MOD 4 failed to demonstrate a Multiple Independent Reentry Vehicle (MIRV) capability in the previous tests, but it could be deployed as a Multiple Reentry Vehicle (MRV).

I also noted last year that a new version of the SS-11 was being flight-tested. These tests continued on a very active basis during 1972, including two flights into the Pacific Ocean in November of that year. This new version of the SS-11 has an MRV payload and is probably more accurate than the original version. Even so, it does not yet have the combination of yield and accuracy needed to attack hard targets effectively. We believe that it was designed primarily to enhance the penetration capabilities of the SS-11 system against ABM-defended urban/industrial and soft military targets. In view of the large number of flight tests already accomplished, we estimate that the new version of the SS-11 is now ready for deployment.

Flight testing of an improved version of the SS-13 also continued in 1972, but on a very modest scale. We believe this new version of the SS-13 will be somewhat more accurate than the original version; but with its relatively small warhead, it is still strictly a soft-target weapon. We believe that this missile may also be ready for deployment.

In contrast to the United States, which does not have any new ICBM systems under development at this time, the Soviet Union is actively testing three new or significantly improved ICBMs—an "SS-9 follow-on," an "SS-11 follow-on," and an "SS-13 follow-on." It is still too early to



draw any firm conclusions as to the ultimate goals of the three new Soviet ICBM development programs. We have reason to believe, however, that these goals include increased pre-launch survivability, accuracy, and improved re-entry systems.

We have no conclusive evidence as yet that the Soviet Union has an operational MIRV. Nevertheless, we continue to believe that such payloads will be developed and deployed. The Soviet Union undoubtedly regards the achievement of a MIRV capability as an important political, as well as a military, goal. The deployment of some 300 "heavy" MIRVed "SS-9 follow-on" ICBMs, which is permissible under the Interim Agreement, would greatly enhance the Soviet Union's hard-target capabilities, particularly if the new missile turned out to be significantly more accurate than the SS-9.

While the United States does not have any new ICBM systems under development at the present time, further improvements are being made in the Minuteman II and III systems. These include:

- Upgrading the "hardness" of the Minuteman II and III silos, and
- Installing, on a phased basis, a Command Data Buffer system in all Minuteman III squadrons to increase the flexibility of the force.

Shown on the chart on this page are the latest projections of the U.S. and U.S.S.R. ICBM forces through mid-1973.

We estimate that the U.S.S.R. at mid-1972 had a total of 1,527 operational ICBM launchers. By mid-1973, some 60 new small silos could be completed, raising the total to about 1,590 operational ICBM launchers. With the completion of new large silos, the Soviet ICBM force would be brought up to our estimate of the ceiling established by the Interim Agreement.

If the U.S.S.R. does not exercise its option to replace the SS-7s and -8s with modern SLBMs, we would assume that the ICBM force would be maintained at or near the maximum level permitted by the Interim Agreement. It also seems reasonable to assume that one or more of the new "follow-on" ICBMs would be deployed in the next few years to modernize the force, and that at least the "SS-9 follow-on" would be MIRVed.

Much more likely, the U.S.S.R. will choose to exercise its option and replace the older ICBMs with modern SLBMs. Inasmuch as the number of SLBM launchers on nuclear-powered submarines operational or undergoing sea trials is expected to reach the initial ceiling of 740 launchers by the mid-1970s, we assume the phase out of the SS-7s and -8s will begin at least by that time. In this case, the remaining ICBM force might be modernized more intensively by the deployment of all three "follow-on" ICBMs, perhaps with MIRV payloads.

The U.S. ICBM force will be maintained at about its present level over the next several years. The number of Minuteman IIIs, however, will increase to 550 by mid-1975. By that time, all of the Minuteman 1s will have been phased out of the force.

Submarine Launched Ballistic Missiles

With regard to the Soviet's SS-N-8, we estimate that its range is about 4,000 nautical miles (nm), considerably greater than the SS-N-6. Inasmuch as the SS-N-8 has been intensively flight-tested in the last year, including three flights into the Pacific Ocean, we assume that the missile is probably ready for deployment. As I

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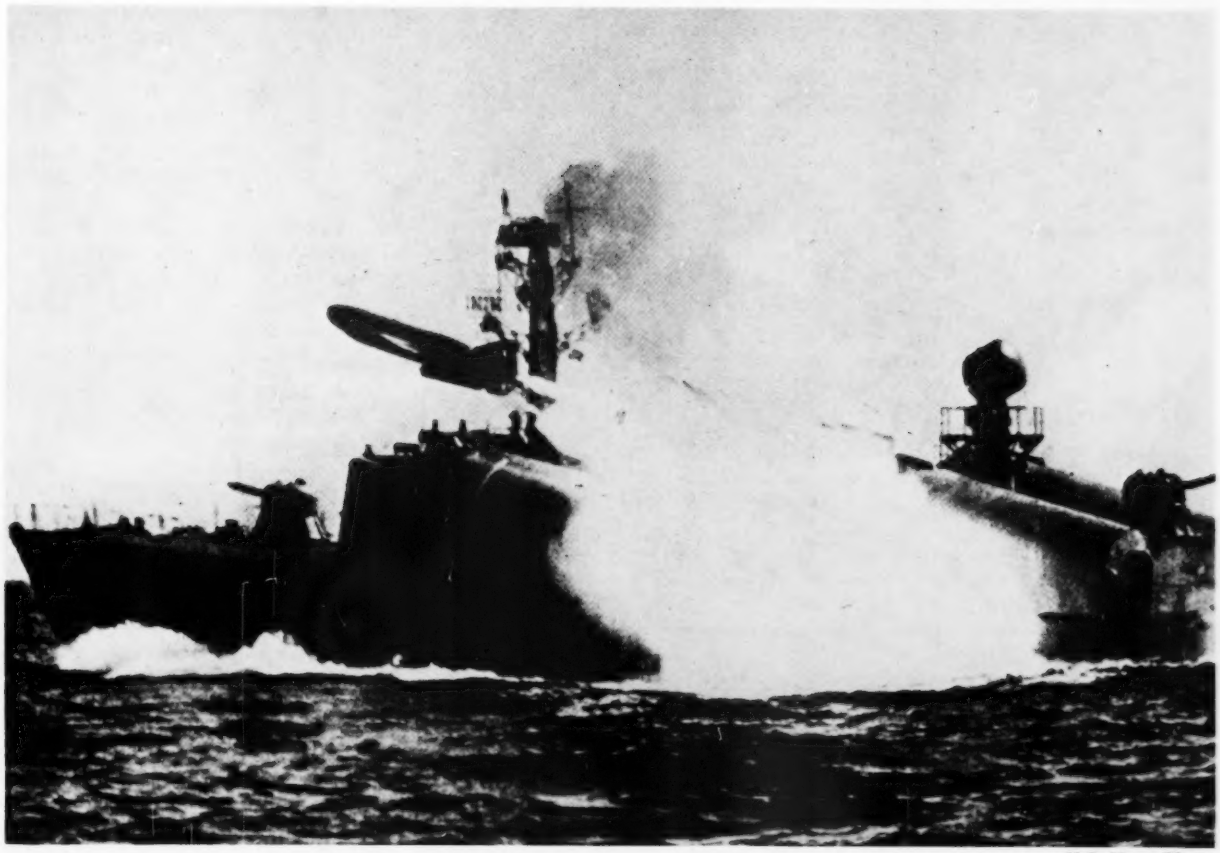


U.S. Navy Photo

A Soviet OSA I class guided missile fast patrol boat launches a missile during a test-firing exercise.

noted earlier, we believe that the SS-N-8 is being installed in the new Delta-class submarine.

None of the U.S.S.R. SLBMs has demonstrated an effective hard-target capability, and none carries more than one Reentry Vehicle (RV). We estimate, however, that new "follow-on" SLBMs will be developed and that they probably will be MIRVed, particularly if the U.S.S.R. develops a MIRV technology for its ICBMs.

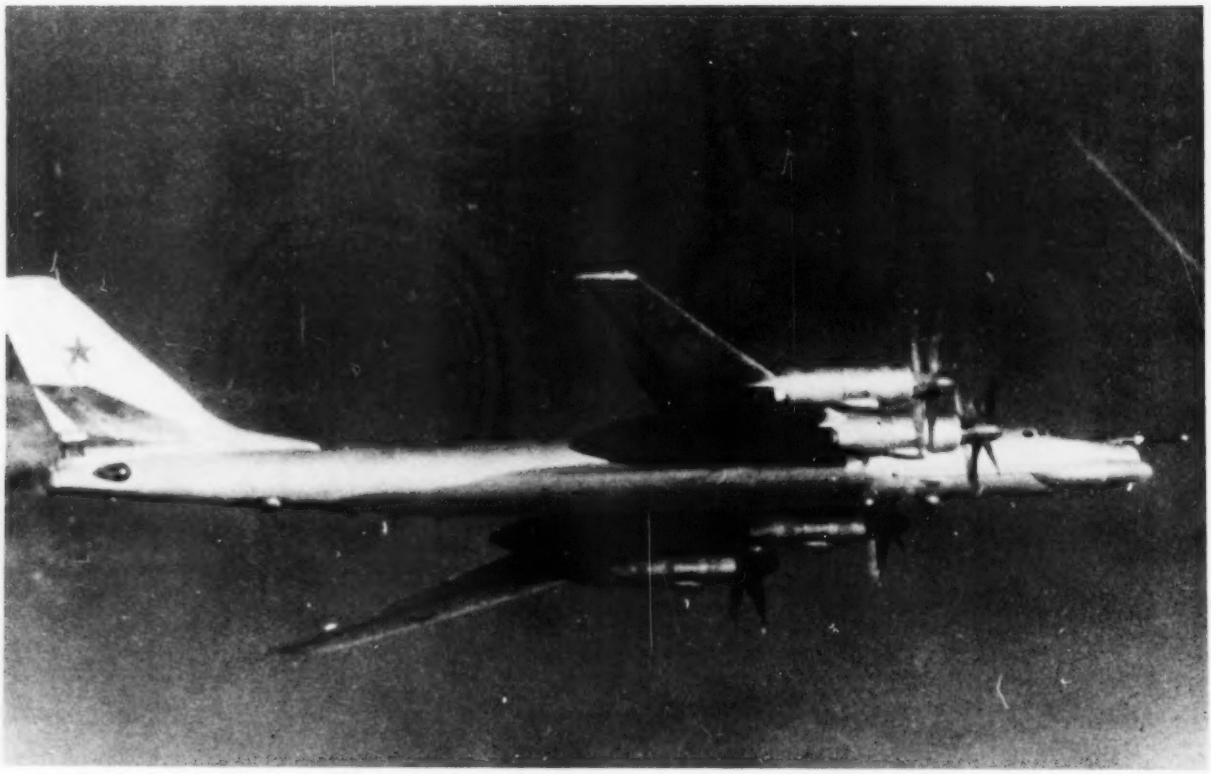
While none of the U.S. SLBMs shown on this chart has a hard-target capability, the Polaris A-3 carries MRVs and the Poseidon carries MIRVs. The new Trident C-4 SLBM will carry a payload comparable to that of Poseidon, but will have a considerably greater range—about 4,000 nm. The Initial Operational Capability (IOC) of this new missile, however, has been slipped to late 1978, the IOC date of our first Trident submarine. Since the new Trident system has been discussed in detail by other Defense officials, I will not pursue the matter here except to say that I fully support the program.

The latest projections of U.S. and U.S.S.R. SLBM launchers through mid-1973 are shown on the top chart on page 9.

We estimate that the U.S.S.R. by mid-1973 will have a total of about 560 SLBM launchers, excluding some 60 SS-N-4 and -5 launchers on diesel-powered submarines. These 60 launchers are excluded from all of the U.S.S.R. strategic forces projections after mid-1972 because they are not considered "strategic missile forces" in terms of the Interim Agreement. Instead, they are included in the U.S.S.R. "theater nuclear forces" after that date.

If the U.S.S.R. chooses to retain the SS-7s and -8s, it could reach its "baseline" ceiling of 740 SLBMs by the mid-1970s. Conversely, if the U.S.S.R. decides to phase out the SS-7s and -8s, it could reach its maximum ceiling of 62 modern ballistic missile submarines and 950 SLBM launchers before the expiration date of the Interim Agreement.

The United States is already at its initial SLBM ceiling—656 launchers. Since the first Trident submarine will not be available until late 1978, a decision on which systems it will replace need not be made for some time. Meanwhile, we will continue to modernize our SLBM forces with Poseidon. The last Polaris A-2 SLBM will be out of the forces by mid-1975, and by mid-1976, all of the Poseidon conversions will have been completed. At that time, we will have 31 Poseidon submarines (496 launchers) and



A Soviet TU-20 "Bear" bomber and reconnaissance aircraft flies a special long-range mission.

10 Polaris A-3 submarines (160 launchers).

Strategic Bomber Forces

Shown on the bottom chart on page 9 are the U.S. and U.S.S.R. strategic bomber forces projected through mid-1973. The major uncertainty regarding the U.S.S.R. bomber force is still the primary mission of the new **Backfire** variable-geometry wing supersonic bomber. Without an appropriate tanker fleet for air-to-air refueling, a **Backfire** force would be considered best suited for peripheral attack. The **Backfire,** however, probably has an air-to-air refueling capability and, in addition to the limited **Bison** tankers, there are at least two new jet transport aircraft which could be adapted to the tanker role. Furthermore, it is generally agreed that the **Backfire** has a good growth potntial and that later versions could have an improved intercontinental attack capability. Accordingly, an intercontinental role for the **Backfire** cannot be excluded. But regardless of which mission may be primary, the **Backfire** will be an important element of Soviet Long Range Aviation and will probably enter the force this year or next.

In terms of just intercontinental bombers, the United States now has, and will most likely continue to enjoy, a substantial quantitative lead over the Soviet Union, even if the **Backfire** is deployed for this mission and even though the number of U.S. intercontinental bombers will decline as some of the older B-52s are phased out of the force during the next few years. If a decision is made next year to produce and deploy the new B-1 bomber, the first few aircraft could be operational by mid-1978.

Strategic Offensive Balance

Last year I presented the three general quantitative measures most frequently used to summarize the overall strategic offensive balance between the United States and the Soviet Union—numbers of delivery vehicles, megatons, and warheads. I noted then that no one of these measures, alone, provides a valid comparison; they must be considered collectively. Moreover, there are a number of other factors—such as command and control, pre-launch survivability, accuracy, range, and penetration capability—which also must be borne in mind in assessing the strategic balance. Unfortunately, these other factors cannot be reduced to a single common denominator that would be suitable for this type of presentation.

The total numbers of U.S. and U.S.S.R. strategic offensive delivery vehicles, projected through mid-1973, are shown on the top chart on page 11. It should be noted that, on this chart, the medium bombers are excluded and only the "deployable" ballistic missile submarines are counted (i.e., submarines in conversion or overhaul are excluded because they are not readily available for deployment).

As can be seen on the chart, the U.S.S.R. has completely eliminated our

very substantial lead in delivery vehicles, and now has surpassed us. This U.S.S.R. quantitative advantage over the U.S. is expected to widen further over the next five years as we continue to phase out some of our older B-52s and they complete the build-up of their SLBM force to the level permitted by the Interim Agreement.

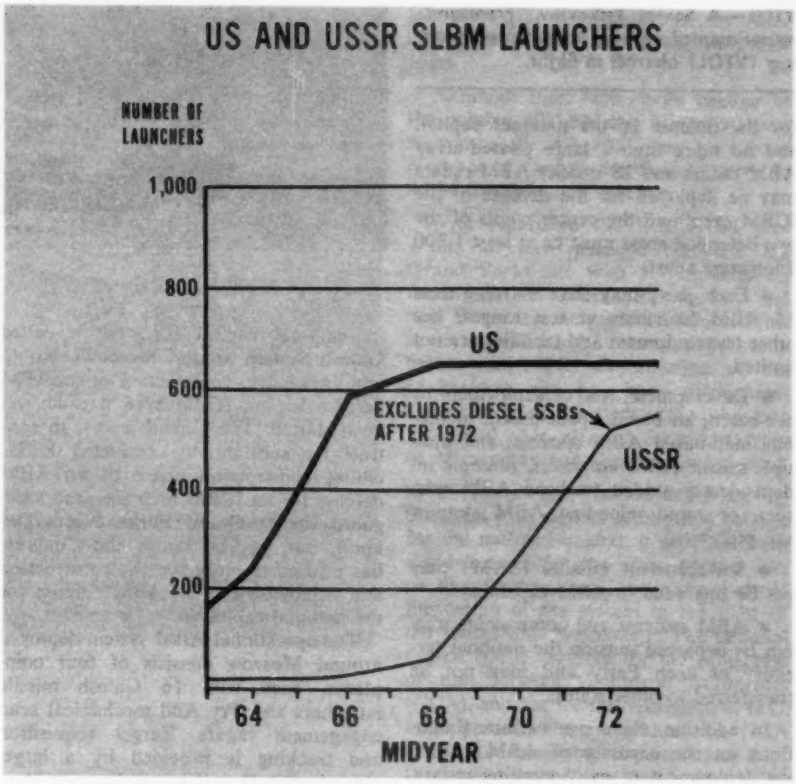
The U.S.S.R. already far surpasses the U.S. in total strategic offensive megatons, the second measure of the strategic balance. (This measure represents the total estimated yield of all the weapons expected to be loaded in the delivery vehicles included on the top chart on page 11.) U.S. megatons declined sharply from 1966 to 1970 as the number of heavy bombers was reduced, and will continue to decline over the next few years as our missile forces are converted to MIRVs. The future trend in U.S.S.R. megatons will depend importantly on the extent to which the missile forces are converted to MIRVs. But even with a relatively rapid conversion, the U.S.S.R. is expected to continue to maintain its predominant lead in gross megatons for several years to come.

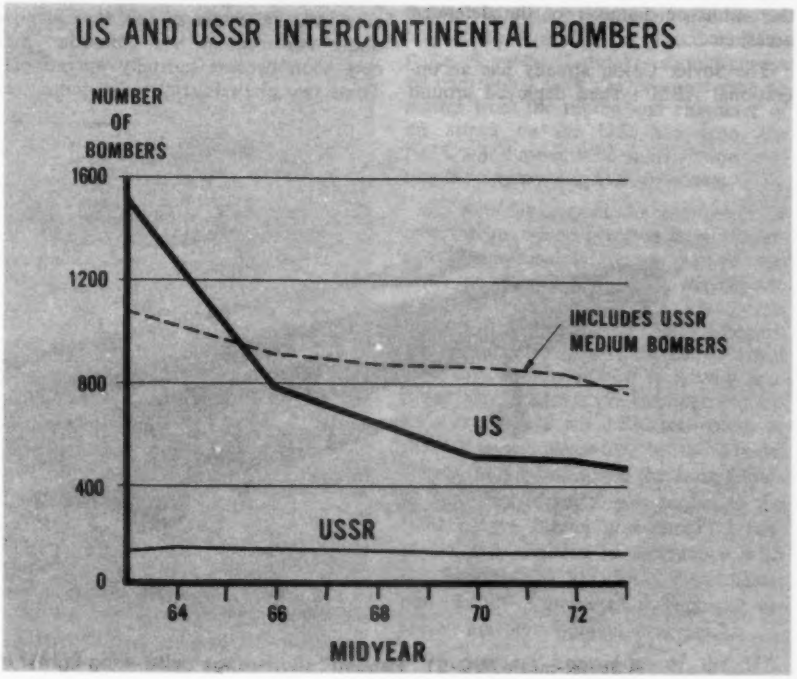
Only in numbers of strategic offensive warheads is the U.S. likely to maintain its lead over the U.S.S.R. during the next 5 years. Even here, the U.S.S.R. has the potential to overtake us since its missile forces have considerably greater "throw weight" or payload capacity than our missile forces. Thus, if the U.S.S.R. moves vigorously into MIRVs during the next few years it could, within the bounds of the Interim Agreement, considerably narrow our lead in numbers of warheads.

Strategic Defensive Forces

The Treaty on the Limitation of Anti-Ballistic Missile Systems, as indicated by the title, applies only to the ABM forces of the U.S. and the U.S.S.R. But, with respect to these forces, the terms of the Treaty are quite precise and the limitations are very tight:

- Each party is limited to no more than 200 ABM missiles and 200 ABM launchers—100 of each for the defense of the national capital, and 100 of each for the defense of an ICBM area.
- No more than six ABM radar complexes (excluding, in the case of the U.S.S.R., the existing mechanical scan ABM radar complexes) may be deployed





VTOL—A Soviet Yakovlev "Freehand" experimental vertical takeoff and landing (VTOL) aircraft in flight.

U.S. Navy Photo

for the defense of the national capital, and no more than 2 large phased-array ABM radars and 18 smaller ABM radars may be deployed for the defense of the ICBM area; and the center points of the two defended areas must be at least 1,300 kilometers apart.

- Each party may have no more than 15 ABM launchers at test ranges, but other test equipment and facilities are not limited.
- Development, test, or deployment of sea-based, air-based, space-based, or mobile land-based ABM systems, and multiple-missile ABM launchers, multiple independently guided warhead ABM missiles, or rapid reloading ABM systems are prohibited.
- Surface-to-air missiles (SAM) may not be upgraded to ABM capability.
- ABM systems and components may not be deployed outside the national territory of each Party and may not be transferred to other states.

In addition, there are various limitations on the capacity of ABM radars, the deployment of early warning radars, the radius or diameter of the defended areas, etc.

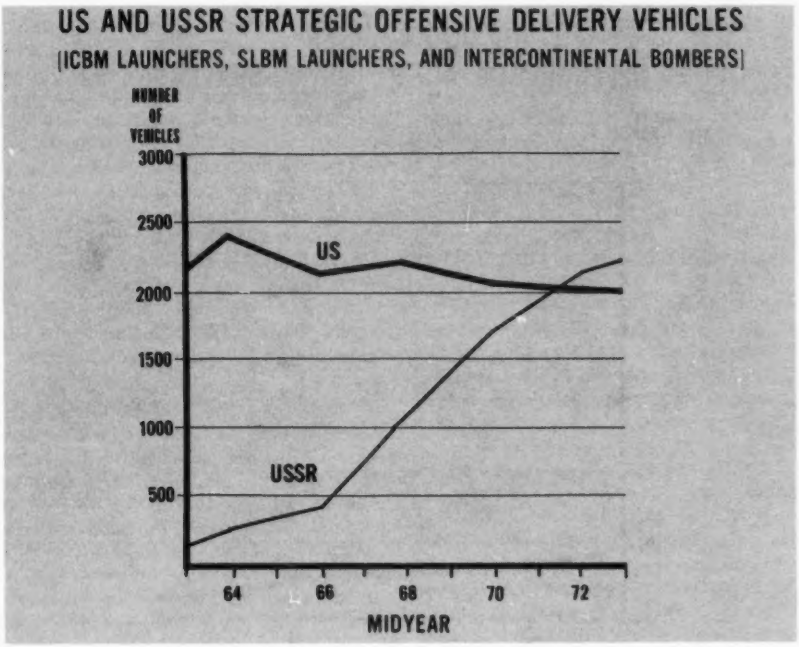
The Soviet Union already has an operational ABM system deployed around its national capital (i.e., the so-called Galosh System around Moscow), but to our knowledge, construction of an ABM defense for an ICBM area has not yet been started. The United States, in contrast, has substantially completed the facilities construction phase of an ABM defense for an ICBM area (i.e., the Safeguard site at Grand Forks, North Dakota), but, as you know, the Congress has refused to authorize the construction and deployment of an ABM defense for the national capital.

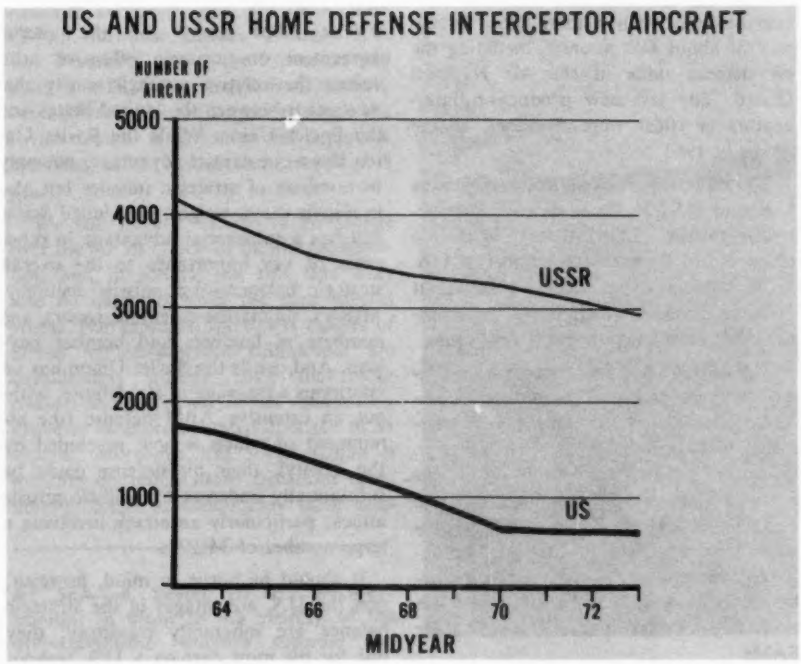
The operational ABM system deployed around Moscow consists of four complexes, each with 16 Galosh missile launchers and Try Add mechanical scan engagement radars. Target acquisition and tracking is provided by a large, phased-array Dog House radar near Moscow. Another radar of this type is now under construction near Moscow and may soon become partially operational. These two phased-array radar complexes count against the Treaty limitation of six complexes for the defense of the national capital area; the Try Add radar in the four existing ABM complexes do not. The deployment of additional early warning radars is not prohibited by the ABM Treaty, provided that the radars are deployed along the periphery of the national territory and are oriented outward.

Last year, after a lapse of several years, work had been resumed at some of the previously started but uncompleted ABM complexes around Moscow. This work has progressed markedly during the past year. It seems reasonable to assume that the Soviet Union will complete the deployment of the Moscow ABM system up to the Treaty limit—6 ABM radar complexes (excluding the existing Try Adds) and 100 ABM missiles on launchers. Accordingly, we estimate that up to four more ABM radar complexes (in addition to the two large phased-array radar complexes) and 36 additional ABM

U.S. Navy Photo

A Soviet-made MiG-21 "Fishbed" short-range delta-wing fighter aircraft takes-off on a mission.





launchers will be installed in the Moscow defense area during the next few years.

Although there was some decline in the number of ABM test firings last year as compared with 1971, we have good evidence of a continuing Soviet interest in ABM research and development.

With regard to the U.S. ABM program, we now plan to complete the Grand Forks site with 100 missiles on launchers, one Missile Site Radar, and one Perimeter Acquisition Radar. This site is expected to be operationally ready before mid-1975. Construction of the Malmstrom site has been terminated. Construction of the work at the other two Safeguard sites planned for the defense of Minuteman has also been terminated.

In view of the position taken by the Congress with respect to an ABM defense for the national capital, it now has been decided to defer the start of this site pending further study, including study of the design of the system in the light of the latest ABM technology. The national capital site is required for the protection of the National Command Authorities (NCA), and not for the Washington, D.C. area, per se. The survival of the NCA under all foreseeable circumstances is of the utmost importance, not only for the timely and orderly execution of a retaliatory strike, but also for effective deterrence. A potential attacker should always be confronted with the prospect that no matter what the timing and character of his attack on the U.S. homeland, the NCA will survive to command and control the appropriate U.S. responses.

As a hedge against the emergence of new threats which could gravely jeopardize our national safety, we plan to continue the development of the site defense system and new technological approaches to even more advanced ABM systems. The strategic situation is still fraught with many uncertainties. It is only prudent, therefore, that we continue our efforts to advance our ABM technology to the full extent permitted by the Treaty. This is the kind of action the Joint Chiefs of Staff had in mind with regard to the third of the "three assurances" I presented last summer in connection with the hearings on the SAL Agreements; namely, full support of a "vigorous research and development program."

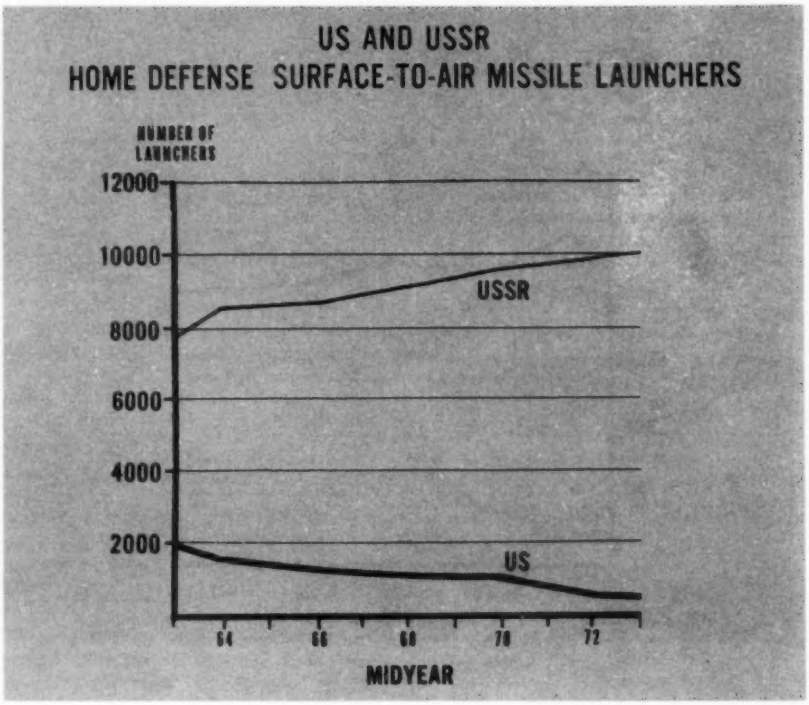
Our current projections of the U.S.

and U.S.S.R. air defense forces are essentially the same as those of last year. The Soviet Union's commanding lead over the United States in numbers of air defense radar sites, command and control facilities, surface-to-air missile launchers, and interceptor aircraft is expected to continue over the next five years. The first two elements of the modernized U.S. air defense system—the Airborne Warning and Control Systems (AWACS) aircraft and the Over-the-Horizon Backscatter (OTHB) radars—are now scheduled to become operational in the late 1970s. The deployment of the first squadron of Improved Manned Interceptors (IMI) is tentatively planned for the early 1980s. Although no decision has been made as yet with respect to the deployment of the SAM-D for continental defense, it could also be available in the early 1980s.

Shown on the bottom chart on page 11 are the U.S. and U.S.S.R. home defense interceptor forces projected through mid-1973. The Soviet force, although reclining slowly in numbers, is being steadily modernized. By mid-1973, the four newest interceptors—Firebar (YAK-28), Fiddler (TU-128), Flagon-A, and Foxbat (MIG-25)—will account for about 40 percent of the force, while the three oldest interceptors—Fresco (MIG-17), Farmer (MIG-19), and Flashlight (YAK-25)—will account for only 35 percent. The Fishpot (SU-9), introduced in 1959, accounts for the remaining 25 percent. This modernization effort is expected to continue, and the three oldest-type interceptors will probably be phased out of the force as the new aircraft are delivered.

Our intelligence organizations still believe that by the late 1970s the U.S.S.R. may provide its advanced interceptors with a look-down/shoot-down radar/missile system, and may deploy a new AWACS with a look-down capability over land, as well as water. Such an interceptor/AWACS force could pose a formidable threat to our bombers. While we have no firm evidence of the existence of either system, we are hedging against this contingency with a cruise missile development program.

The U.S. interceptor force will be maintained through mid-1973 at about the current level, with a total active inventory of about 600 aircraft, including the air defense units of the Air National Guard. The last new production interceptors (F-106s) were delivered to the forces in 1961.



Shown on the chart on this page are the U.S. and U.S.S.R. home defense Surface-to-Air missile (SAM) forces. With the phase out of Bomarc, the number of U.S. SAM launchers has declined to about 500, the level at which it will be maintained at least over the next few years.

The Soviet SAM force increased slightly during the past year as additional SA-3 low-altitude SAMs and SA-5 long-range, high-altitude SAMs were deployed. However, the long term build-up of this force may be nearing completion. While some additional SA-3s and -5s (or possibly more advanced SAMs) may be deployed during the next few years, we believe this increase may be offset, or even exceeded, by the phase out of older SAMs.

Overall Strategic Balance

The ABM treaty and the interim agreement on strategic offensive arms reflect the relative strategic parity that now exists between the United States and the Soviet Union. While the Soviet Union has a substantial advantage, not only in numbers of strategic missiles but also in missile throw-weight, the United States still has a substantial advantage in other areas of key importance to the overall strategic balance—e.g., missile accuracy, MIRVs, submarine-quietness, sonars, and numbers of bombers and bomber payload. And, while the Soviet Union has an enormous advantage in air defense, without an extensive ABM defense (the attainment of which is now precluded by the Treaty), their air defense could be substantially undercut by ballistic missile attack, particularly an attack involving a large number of MIRVs.

It should be borne in mind, however, that the U.S. advantages in the strategic balance are inherently transitory; they rest for the most part on a U.S. techno-

logical lead that has been steadily narrowing over the past decade. Furthermore, as I pointed out earlier, the Interim Agreement does not provide any significant constraints on qualitative improvements in the strategic missile forces; nor does it provide any limitations whatsoever on the strategic bomber forces. Consequently, given the current momentum of the Soviet strategic offensive R&D program, we cannot preclude the possibility that our technological lead in this area may further diminish or disappear altogether during the current decade.

We have sufficient evidence to convince us that the Soviet Union is making a serious effort to improve the accuracy of its strategic missiles. Moreover, we believe that the Soviet Union will soon succeed in its efforts to develop an effective MIRV system for its strategic missiles. Thus, the Soviet Union may be able to challenge our lead in both missile guidance and MIRVs in the future, and thereby pose a significant threat to our Minuteman force.

Our qualitative lead in SLBMs has already been successfully challenged in at least one respect. The Soviet Union may soon have an operational 4,000 nm range SLBM, the SS-N-8. Our 4,000 nm range SLBM, the Trident C-4, will not be operationally available until late 1978. The SS-N-8, however, carries a single RV. The Trident C-4, like the Poseidon, will carry a MIRVed payload. But, that advantage may also be transitory since the Soviet Union is expected to deploy a MIRVed SLBM within the next 5 or 6 years.

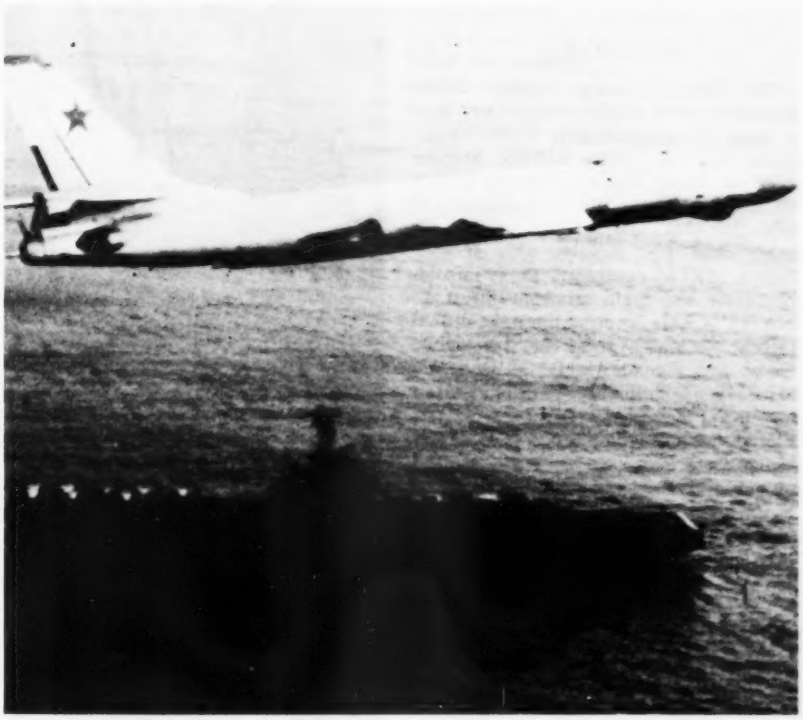
We still have a significant advantage over the Soviet Union in submarine-quietness and in sonars, but this lead may also be narrowed over the next several years. For example, the newer classes of Soviet nuclear-powered submarines are considerably quieter than the older classes; and the newer Soviet sonars may prove to be more effective than the older sonars. Moreover, the Soviet Union is working on much more advanced technology, some of which may have anti-submarine warfare (ASW) application in the future.

The new Soviet **Backfire** bomber represents a significant advance in aircraft technology, even though there is still a question about its primary mission. It is the first Soviet supersonic bomber with a variable-geometry wing, and it probably is designed for air-to-air refueling. Thus, given a suitable tanker force, the **Backfire** could prove to be an effective intercontinental bomber. While our B-1 promises to be markedly superior to the **Backfire** in the intercontinental role, it will not be available for operational deployment until 1978 at the earliest.

There are many other areas of importance to the strategic balance where the Soviet Union is steadily narrowing our technological lead, or may have already overtaken us. Moreover, the Soviet leaders have made it clear that they intend to press forward in the strategic area within the bounds of the SAL agreements, and indeed, they appear to be doing so. Consequently, short of a much more comprehensive and definitive agreement on strategic offensive forces, it is essential that we continue to pursue a vigorous and extensive R&D program in the strategic area:

- First, to hedge against the more serious threats the Soviet Union might be able to pose to our strategic deterrent forces within the bounds of the Interim Agreement; and
- Second, to hedge against a failure to achieve an acceptable "permanent agreement on strategic offensive forces.

As I noted last year, the emergence of the Peoples Republic of China as a significant nuclear power will add a new and complex factor to the strategic equation, both for the United States and the Soviet Union. Indeed, China's nuclear reach may soon extend to all of the Soviet Union and before the end of the current decade to virtually all of the Continental United States as well. While it is still too early to assess the full implications of this new development, it seems clear that the continued growth in China's nuclear capabilities will eventually have a profound impact on the current bilateral strategic relationship between the United States and the Soviet Union.



AT SEA—A Soviet TU-16 "Badger" bomber in flight in the vicinity of the anti-submarine warfare support aircraft carrier USS Intrepid.

U.S. Navy Photo

Modern and Balanced

U.S.S.R. MILITARY CAPABILITY

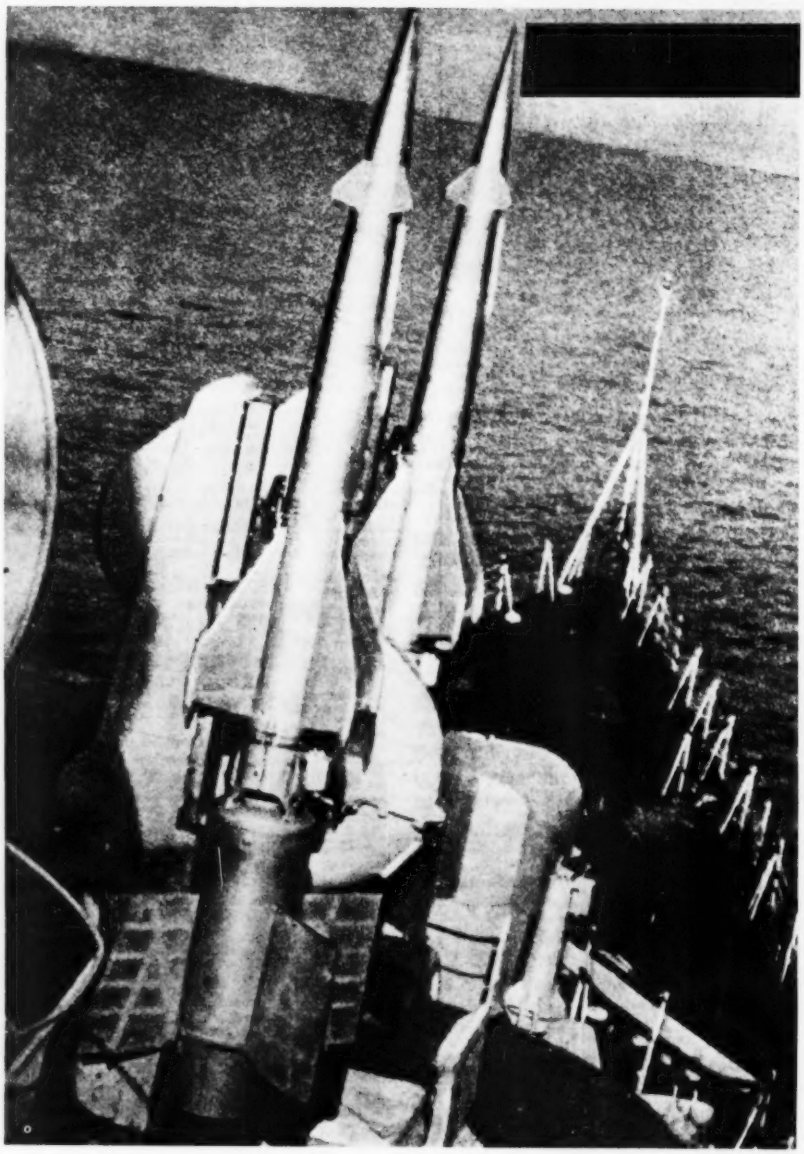
The Soviet armed forces have been developed carefully and systematically. They are a modern and formidable well-balanced and organized force capable of conducting both defensive and aggressive offensive operations. A large proportion of the Soviet state budget is spent annually on defense and defense-related research and development.

The Warsaw Pact countries have improved the quality of their armed forces considerably. Their total strength is now estimated to be about 4.5 million men and their modern equipment is almost exclusively Soviet made. The Warsaw Pact nations, like the U.S.S.R. have increased their military budgets.

Soviet Rockets

The Soviet strategic rocket forces consist of about 350,000 men. They have a total of approximately 1,400 operational Intercontinental Ballistic Missiles Medium Range Ballistic Missiles (IRBM (ICBM) and about 500 Intermediate and and MRBM). In addition there are more than 100 missiles with ICBM/IRBM/MRBM capability. These missiles constitute the main strategic threat to NATO, ICBMs covering the most distant targets, including those in the United States and Canada, while IRBMS and MRBMS are primarily directed against targets in Western Europe. A new missile development, the "Multiple Re-Entry Vehicle" (MRV) has been in the trial stage for over two years and may now be

from the book—NATO Facts, Figures.



SOVIET NAVY—The Soviet surface fleet has an estimated 120 cruiser-destroyer ships. Many of the modernized or new classes of ships are fitted with surface-to-surface and surface-to-air missiles.

TANKS—Soviet ground forces have an estimated strength of 2,500,000 men, organized in about 164 tank, motorized rifle and airborne divisions.

available for deployment. This, together with the "Fractional Orbital Bombardment System" (FOBS), which is to be used to overcome the U.S. ballistic missile warning system, constitutes a further increase in Soviet strategic missile capability. Furthermore, a limited Anti-Ballistic Missile (ABM) system has become operational.

Ground Forces

The Soviet ground forces have an estimated strength of 2,500,000 men, organized, so far as field units are concerned, in about 165 tank, motorized rifle and airborne divisions. Approximately 40 of these divisions are in the Sino-Soviet border area, including 2 divisions in the People's Republic of Mongolia. Of the remaining divisions, over 90 are located in Central U.S.S.R., west of the Ural mountains and north of the Caucasus and 31 in the other Warsaw Pact member countries: 20 in the German Democratic Republic, 2 in Poland, 5 in Czechoslovakia, and 4 in Hungary. These 31 divisions are combat-ready. The divisions stationed in the U.S.S.R., however, are at different levels of combat-readiness. About three-quarters of them would be almost immediately available for operations. The 7 airborne divisions, with approximately 50,000 men, are combat-ready and up to 2 of these divisions and their supporting elements could be air-dropped or air-landed simultaneously over medium ranges.

After World War II, the Soviets continued to modernize their ground forces. Particular emphasis has been placed on increased mobility, that today the Soviets have only standardized armored and motorized forces in addition to their airborne divisions. The cross-country and river-crossing capabilities of their units have been improved, as has their night-fighting ability. They have been equipped with heavier mobile weapons. One of the most important aspects of these modernizations has been a recent increase in conventional artillery and the equipping of ground forces with a variety of tactical nuclear weapons, some of which are mounted on tracked carriers to give them a higher degree of mobility. In general, the Soviet forces are kept at a high level of proficiency from recruit training to advanced studies at military academies. They operate efficiently in both small and large-scale maneuvers. All these developments make the Soviet army a modern, well equipped and efficient fighting force, geared to the realities of the nuclear age.

Warsaw Pact

Soviet strength is supplemented by forces provided by her allies, totalling some 60 motorized rifle and tank divisions. There are about 6 East German, 15 Polish, 10 Czechoslovak, 6 Hungarian, 10 Rumanian and 13 Bulgarian divisions. These armies are constantly improving in the fields of equipment, training and coordination with Soviet forces. Almost all the divisions are combat-ready. As far as their reliability is concerned, it is assumed that these forces will support the Soviet Union in case of a conflict with NATO.

Soviet Air Force

The estimated strength of the Soviet air forces is at present of the order of about 7,000 fighters, 2,000 light, medium and heavy bombers, and 2,500 transport and other aircraft, totalling approximately 11,500 aircraft. About three-quarters of these, including some 3,000 air defense fighter aircraft, are likely to be of direct concern to the Alliance. The Soviet air forces are divided into five major components: Air Defense, Tactical, Long-Range, Transport and Naval Aviation. The quality of the aircraft is high and generally comparable with their Western counterparts. A large number of well protected airfields is available, providing the Soviet air forces with a rapid redeployment capability and thus improving their flexibility and mobility. In view of this and the extensive air defense measures taken, they also possess a high degree of survivability.

These air forces comprise a total of some 2,500 aircraft, most of them being air defense fighters, and it can be assumed that the Soviets regard them as the forward element of their own air defense system.

Soviet Navy

The Soviet Navy consists of four fleets: The Pacific, Baltic, Black Sea and Northern Fleets. The Pacific Fleet is not of direct concern to NATO. The Baltic and Black Sea fleets share the problem of limited and difficult access to the open sea and, in wartime, would have to force a passage through narrow straits. During and since the Arab/Israeli conflict in the Middle East in 1967, the Soviets have established a greatly increased presence in the Mediterranean.

The Northern Fleet, with direct access to the Atlantic Ocean, forms the main threat against the lines of communication between America and Europe. A signifi-

cant aspect of Soviet naval strength lies in its submarine fleet, comprising about 340 submarines, of which two-thirds are long-range ocean-going types, capable of operation almost anywhere in the Atlantic or Pacific. This impressive Soviet submarine force, like the rest of the fleet, has been undergoing extensive modernization and has rapidly increased in recent years. It probably now includes about 110 nuclear-propelled submarines, some of which are capable of firing missiles from underwater to ranges up to 1,500 miles. Many of the conventionally-powered submarines are also armed with missiles. The largest number of Soviet submarines belong to the Northern Fleet and thus have access to areas of vital importance to the Alliance.

The pride of the Soviet surface fleet is now the cruiser-destroyer force, estimated at approximately 120 ships, including two helicopter cruisers. Many modernized ships or new classes of ships, fitted with surface-to-surface and surface-to-air missiles, have been sighted. The tendency to equip newly constructed ships with missiles rather than conventional weapons is also evident in quite small classes of vessels, such as a fast patrol boat which has surface-to-surface missiles. Recently a larger craft of that kind with improved surface-to-surface (SSM) armament became operational. Soviet naval forces include an estimated 6 brigades of naval infantry, subordinated to the four Soviet fleets. Each of the fleets is backed up by its own Fleet Air Force consisting of strike/reconnaissance and anti-submarine aircraft, with a number of transport aircraft in support. Nearly all Soviet medium range naval aircraft can carry anti-ship missiles with ranges of about 100 nautical miles.

The Soviet Union was for many years essentially a land power, and the fleet was regarded as an extension of its army. However, in 1962, its navy was accorded its own position as an individual service and is now required both to perform its own purely maritime tasks and to co-operate in joint inter-service defense plans. This seems to indicate a growing appreciation of the proper application of seapower. Proof of this is to be found in the increasingly frequent appearances of Soviet fleet units in the Atlantic, in particular south of the Tropic of Cancer and in the Indian Ocean, far from their home bases, as well as in the continued Soviet build-up in the Mediterranean.

Merchant Marine

Another threat which was not fully appreciated until recently lies in the growth of the Soviet merchant and fishing fleets. From very modest beginnings, both have grown spectacularly in recent years. The Soviet "fish factory" ships and trawlers now range over the world's oceans, and it is significant that a high proportion of them are equipped for intelligence gathering. They carry comprehensive monitoring equipment and highly sophisticated electronic gear. Their speed is often in excess of that usually associated with such craft. It is not unusual for such a trawler to attach itself to NATO formations during exercises as an uninvited and extremely persistent observer.

The Soviets are devoting considerable attention to merchant shipping. The target that has been set for their merchant fleet, which at present has a tonnage of approximately 14 million, has been announced as more than 22 million tons by 1980.

Warsaw Pact Navies

These navies are small and mainly equipped to assume responsibility for the defense of home waters. They include a naval infantry force of almost two divisions with adequate sealift capability. Combined Warsaw Pact exercises have been carried out in both the Baltic and Black Seas, and an improved operational capability has been demonstrated.

DIVISIONS—There are 40 Soviet divisions in the Sino-Soviet border area, including 2 divisions in the People's Republic of Mongolia. Ninety divisions are in Central U.S.S.R., west of the Ural mountains, and 31 other divisions in the other Warsaw Pact member countries.

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